Chemical Name: Afidopyropen
USEPA PC Code: 026200
USEPA MRID: 49689225
USEPA DP Barcode: 435146
PMRA Data Code (DACO): 9.2.4.8
PMRA Study No. (UKID): 2627490
Data Requirement: Non-guideline

Test Material: BAS 440 00 I (TEP, VERSYS™) **Purity:** 9.7%

Active Ingredient: Afidopyropen
IUPAC Name: [(3*S*,4*R*,4a*R*,6*S*,6a*S*,12*R*,12a*S*,12b*S*)-3-(cyclopropylcarbonyloxy)-1,2,3,4,4a,5,6,6a,12a,12b-decahydro-6,12-dihydroxy-4,6a,12b-trimethyl-11-oxo-9-(3-pyridyl)-11*H*,12*H*-benzo[*f*]pyrano[4,3-*b*]chromen-4-yl]methylcyclopropane carboxylate
CAS Name: [(3*S*,4*R*,4a*R*,6*S*,6a*S*,12*R*,12a*S*,12b*S*)-3-(cyclopropylcarbonyl)oxy)]-1,3,4,4a,5,6,6a,12,12a,12b-decahydro-6,12-dihydroxy-4,6a,12b-trimethyl-11-oxo-9-(3-pyridyl)-2*H*,11*H*-naphtho[2,1-*b*]pyrano[3,4-*e*]pyran-4-yl]methyl cyclopropanecarboxylate
CAS No.: 915972-17-7
Synonyms: INSCALIS™

Primary Reviewer: Thomas Steeger, Ph.D.
Senior Science Advisor, USEPA/OSCP/OPP/EFED/ERB 4
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Date: February 15, 2018

Secondary Reviewer: Cameron Douglass, Ph.D.
Biologist, USEPA/OSCP/OPP/EFED/ERB 4
Signature: Cameron Douglass 2018.02.15 14:30:57 -05'00'
Date: February 15, 2018

PMRA Reviewer: Vedad Izadi
Evaluation Officer, PMRA/EAD/ERSII
Date: 1 September 2017

Date Evaluation Completed: 1 September 2017

CITATION: Klinkert, A. 2015. Determination of residues of BAS 440 00 I (Afidopyropen) in bee-relevant matrices in a semi-field honey bee (*Apis mellifera* L.) study in Canola (*Brassica* sp.) after one application during flowering. Eurofins Agroscience Services Eco Chem GmbH Eutinger Str. 24 75223 Niefern-Öschelbronn, Germany. Report No. 721406. Sponsored by BASF.

Executive Summary:
A semi-field test was carried out to determine the residues of a typical end-use product (TEP) containing afidopyropen (BAS 440 00I, VERSYS™), and its metabolite M440I007, in flowers, pollen and nectar collected by honey bees (*Apis mellifera*) from canola (*Brassica* sp.) either treated once with BAS 440 00 I (9.7% active ingredient) or with water (negative control) during bloom at BBCH 63-64 in North Carolina, USA. BAS 440 00 I was applied as one application nominally corresponding to 50 g a.i./ha (0.272 lbs

a.i./A) during active bee flight during flowering. All applications were performed by using a backpack boom-sprayer at a rate of 500 L water/ha.

Commercial honey bees were used as sampling device for canola pollen and nectar. Honeybee hives were set up in the day before application and first sampling. Samples of honey bee-collected pollen (pollen traps), nectar (honey stomach) collected from forager bees and canola flowers were taken 4 times and pollen directly from flowers once until end of flowering, were analyzed for residues of BAS 440 I (afidopyropen) and its metabolite M440I007.

In canola flowers, mean afidopyropen residues were 4.43 mg/kg (range: 3.73 - 4.97 mg/kg) at 0 days after application (0 DAA), 0.11 mg/kg (range: 0.10 - 0.13 mg/kg) at 3 DAA, and 0.013 mg/kg (range: 0.011 - 0.015 mg/kg) at 7 DAA, and were less than the limit of quantification (LOQ<0.01 mg/kg) at 10 DAA. Mean M440I007 residues were 0.36 mg/kg (range: 0.33 - 0.40 mg/kg) at 0 DAA, 0.020 mg/kg (range: 0.014 - 0.023 mg/kg) at 3 DAA, and were below the LOQ (<0.01 mg/kg) in all samples collected 7 and 10 DAA.

In pollen, mean afidopyropen residues were 0.26 mg/kg (range: 0.17 - 0.40 mg/kg) at 0 DAA, were 0.023 mg/kg (range, 0.018 - 0.031 mg/kg) and 0.027 mg/kg (range: 0.020 - 0.037 mg/kg) at 3 and 7 DAA, respectively, and declined to <0.010 mg/kg (range: <0.010 - 0.011 mg/kg) at 10 DAA. Mean M440I007 residues were 0.061 mg/kg (range: 0.037 - 0.10) at 0 DAA and were below the LOQ (each replicate <0.01 mg/kg, except one at 0.018 mg/kg at 3 DAA) for the remaining sampling intervals.

In nectar, mean afidopyropen residues were 0.052 mg/kg (range, 0.010 - 0.13 mg/kg) at 0 DAA, and were below the LOQ (<0.01 mg/kg) in all samples collected 3, 7, and 10 DAA. Mean M440I007 residues were below the LOQ (each replicate <0.01 mg/kg except one at 0.013 mg/kg at 0 DAA) in all samples collected 0, 3, 7, and 10 DAA.

Although the study was not intended to provide biological information on the bees used to collect samples, weights of pollen samples provide anecdotal information that at 0 and 3 DAA, samples sizes from treated plots were 77 – 78% lower than controls; however, by 7 and 10 DAA, pollen sample weights from treated plots had increased by 38 and 36%, respectively, relative to controls. These data suggest that bee pollen foraging activity may have been affected in afidopyropen-treated plots from 0 through 3 DAA; however, after this period, bee pollen foraging activity may have increased in the treated group relative to controls. Based on sample sizes of nectar, nectar foraging activity did not appear to be affected.

Results Synopsis:

Mean residues at 0 DAA after foliar application of BAS 440 00 I at nominal rate of 50 g a.i./ha (0.272 lbs a.i./A):

Flowers: 4.43 ± 0.63 mg/kg (Parent); 0.36 ± 0.035 mg/kg (M4401007)
Nectar: 0.052 ± 0.068 mg/kg (Parent); <0.01 mg/kg (M4401007)
Pollen: 0.26 ± 0.12 mg/kg (Parent); 0.061 ± 0.034 mg/kg (M4401007)

EPA Classification: Acceptable
PMRA Classification: Reliable with restrictions

I. DATA SOURCE

USEPA MRID No.:	49689225
PMRA UKID:	2627490
Study Title:	Determination of residues of BAS 440 00 I (Afidopyropen) in bee-relevant matrices in a semi-field honey bee (*Apis mellifera* L.) study in Canola (*Brassica* sp.) after one application during flowering.
Study Author(s):	Klinkert, A**.**
Testing Laboratory:	Eurofins Agroscience Services Eco Chem GmbH Eutinger Str. 24 75223 Niefern-Öschelbronn Germany
Laboratory Report No.:	721406
Sponsor Study No.:	BASF Reg. Doc. #: 2015/7001306
Study Completion Date:	24 November 2015
Data Access:	Data submitter is data owner
Data Protection Claimed:	Yes

II. MATERIALS AND METHODS

Test Guideline:	Non-guideline
Deviations from Guideline:	Calibration of boom sprayer conducted one day prior to application rather than on day of application. During the calibration, first spray nozzle was outside of the 5% deviation of the mean (151.9 vs 160.0). Less than 0.5 g of pollen collected for several sampling dates and samples; however, residue analysis could be completed on the amount of sample collected. Storage temperature rose above -18oC on several occasions.
GLP Compliance:	Study conducted compliant with the Principles of Good Laboratory Practice (GLP) (Chemicals Act, Annex 1, Germany); the OECD Principles of Good Laboratory Practice, which are accepted by regulatory authorities throughout the European Community, the United States of America (EPA and FD) and Japan (MHW, MAFF and METI) on the basis of intergovernmental agreements. The analytical phase was compliant with EPA Good Laboratory Practice requirements (40 CFR 160).

A. MATERIALS

Test Material:	BAS 440 00 I (Reg. no. 5 599 022) Active ingredient: BAS 440 I (afidopyropen) CAS Number 915972-17-7
Test Material Identity:	Batch No. 17670104-1; dispersible concentrate; 9.7% (w/w) 100 g a.i./L. Liquid/yellow.

Details on Preparation and Application of Test Materials:

Content of active ingredient: BAS 440 I: 9.7% w/w; (nominal: 100 g/L); batch no. 1767-104-1; density: 1.0235g/cm^3. The test item solution was

	prepared shortly before the application. Homogeneity of the test item solution was obtained by thorough stirring or mixing. The application was carried out during bee flight at flowering of the crop (*Brassica* sp.). All substances were applied in 500 L/ha water using a calibrated backpack boom sprayer.
Analytical Monitoring:	Yes (see below)
Details on Analytical Method:	Specimens of canola flowers, nectar from forager bees and pollen from forager bees were analyzed for residues of afidopyropen and its M440I007 degradate following the provisions of BASF Method D1412: '*Determination of Residues of BAS 440 I and its Metabolite M440I007 in Bee – Related Matrices by LCMS/MS*' where residues of afidopyropen were extracted and partitioned using acetonitrile and salt solution, and then cleaned-up using a dispersive solid-phase extraction (dSPE) technique. The determination of afidopyropen was performed by high performance liquid chromatography (HPLC) positive ion electrospray ionization tandem mass spectrometry (MS/MS-ESI), monitoring ion transitions m/z 594→148 for BAS 440 I and m/z 1188→576 for the metabolite M440I007.The limit of quantification (LOQ) for afidopyropen and M440I007 in bee-related matrices was 0.01 mg/kg each. The method limit of detection (LOD) was estimated at 20% of the limit of quantitation, equivalent to 0.002 mg/kg for each of the analytes. Mean recovery of M4401007 from flowers fortified at the LOQ was 66% (CV=10%); method-detector response was lintera over the 0.05 – 1.0 ng/mL range (r= 0.9915 – 0.9998); the limit of quantitation (LOQ), based on the lowest level of method validation (LLMV) was approximately 0.01 mg/kg for each analyte in the various matrices. Mean recoveries from flowers, pollen and nectar "shipping verification" sampels were 97 – 117% of nominal; field spikes were stored for up to 327 days prior to extraction.
Reference Material:	None
Reference Material Identity	N/A
Vehicle:	N/A
Test Organism (Species):	*Apis mellifera* L. (honeybee)
Animal Group:	Arthropoda/Insecta/Hymenoptera/Apidae
Details on Test Organisms:	Honeybees were only used as sampling device. No biological observations were made. Honeybees, *Apis mellifera* L. (Hymenoptera, *Apidae*) of the race Italian bee, as typical for commercial use were used as sampling device for pollen and nectar. The colonies were bred by Eurofins Agroscience Services, Inc. For each tunnel, one honeybee hive was used. The hives contained ten frames with 4-5 frames containing pollen and honey and approximately 8000 bees in average. The hives

were visibly healthy and queen-right. The hives were placed inside their respective tunnels in the morning of 05 Jun 2014 (BBCH: 10% 59, 10% 62, 40% 63, 20% 64, 10% 65, 10% 67) – one day before the first sampling of pollen and forager bees.

B. STUDY DESIGN AND METHODS

Study Type: Semi-field (tunnel) study

Test Duration Type: Determination of residues of BAS 440 I and its metabolite M440I007 in bee-relevant matrices up to 11 days after application of the test item

Limit Test: Yes

Total Exposure Duration: 11 days

Post-Exposure Observation Period:
Honey bees were only used as sampling device. No biological observations were made

Test Location: This residue study was conducted in Cedar Grove, region Mebane, North Carolina, USA

Test Environmental Conditions: Natural field conditions; during the application the temperature, wind speed, cloud coverage and humidity data were recorded in the field. For the entire field phase, the following weather data were taken from the weather station at the Cedar Grove testing facility at a distance of approx. 200 m to the field site: daily min/max and mean temperature, daily min/max and mean humidity (GLP record). Daily precipitation was measured with a rain gauge placed in one of the tunnels (GLP). Air temperatures were at 19 °C – 30 °C before application, 16 °C – 28 °C during application of the test item, 14 °C – 33 °C during sampling phase. 50% – 95% (range; mean: 76%) during application

Photoperiod and Lighting: Natural (ambient) environmental conditions.

Nominal and Measured Concentrations:
Nominal: negative control (untreated water), 0.5 L BAS 440 00 I/ha (corresponding to 50 g BAS 440 I/ha); all treatments were applied in 500 L water/ha. Nominal treatment concentration was not verified analytically.

Test Plots: Plots were planted with full flowering canola (*Brassica* sp.). The total area covered per tunnel was approximately 137 m². The dimension of each tunnel was approximately 22.86 m in length, 6 m (Ta, C) in width and 2.8 m in height (at the center). A path of approx. 0.5 m was created by mulching the crop in the middle of the tunnel, because the spray width of the boom sprayer did not cover the middle part. The remaining crop area was approx. 125 m². The tunnel frames were covered with light plastic gauze. In each tunnel tent, one small bee colony was introduced one day before application and first sampling (in the morning of 05 Jun 2014, 1DBA). A container filled with water was placed into each tunnel as water supply for the bees.

Test Design:

Honey bees were used as sampling device for Canola pollen and nectar. Commercial honey bees were set up one day before application and first sampling. Samples of honeybee-collected pollen, nectar prepared from forager bees and canola flowers were taken for residue analysis 4 times (DAA0, 3, 7 and 10) until end of flowering, to be subsequently analyzed for residues of BAS 440 I (afidopyropen) and its metabolite M440I007.

Sampling of Canola inflorescences: The terminal inflorescences with open flowers were cut at the end of the stipe and hand bagged. The samples of flowers were collected from at least 12 different locations across the plot, respectively. Flowers were sampled 4 times during flowering period (approx. BBCH 62-67 to BBCH 69). Samples were divided into sub-sample A (with at least 5 g) for residue analysis and R as retained sample. The sampling always started in the control group or was conducted by different personnel.

Sampling of pollen from pollen traps: The honeybee hives were equipped with pollen traps as used for commercial pollen collection. At the sampling day the grid of the pollen trap was inserted during time of foraging activity of the bees and is kept in place for approximately 4 - 8 hours from when inserted. After this period, the grid was removed from the pollen trap and the collected pollen was sampled. Samples were divided into sub-sample A (with at least 0.5 g) for residue analysis and R as retained sample. The sampling always started in the control group or was conducted by different personnel.

Sampling of pollen from inflorescences (additional sample): Additional pollen was manually collected from flowers on 0DAA in the test item treatment group. Therefore, flowers were rubbed against a sieve and pollen which had fallen through the sieve was collected.

Sampling of forager bees for preparation of nectar: Shortly before sampling, the hive entrances were sealed and the forager bees were subsequently collected as they returned to the hive by collecting them into a box containing dry ice, either by using modified hoovers (“bee vac”). Directly after sampling, the sample was split in two sub-samples (A for residue analysis (≥ 300 bees) and retained sample (R-sample) (≥150 bees, or all remaining)). If less forager bees were available, the R sample contains less forager bees. The sampling always started in the control group or was conducted by different personnel.

Nectar from forager bees for residue analysis: All forager bee samples (A and R samples) were prepared from the honey stomach and the nectar of the respective subsamples was pooled. The weight of the

pooled samples was recorded. The nectar samples were unfrozen for <2 hours during preparation and were transferred back to the freezer immediately afterwards.

After collection of the specimens, flower samples were deep frozen 5 min after end of sampling (ambient transport to freezer, 5 min transport) and subsequently stored deep frozen until residue analysis.

Pollen from pollen traps and inflorescences: Samples were transported on dry ice and subsequently deep frozen until residue analysis. Sampling of forager bees for preparation of nectar: Samples were transported on dry ice and subsequently deep frozen until residue analysis.

III. **APPLICANT'S REPORTED RESULTS AND DISCUSSION**

Exposure Duration:	11 day*s*
Endpoint(s):	Residues of afidopyropen and its metabolite M440I007 in inflorescences of Canola (*Brassica* sp.) as well as in pollen collected with pollen traps and nectar prepared from honey stomachs of forager honeybees after exposure to flowering *Brassica* sp., treated once with BAS 440 00 I during flowering in a semi-field residue study in North Carolina. The treated samples in this study were stored frozen for 275 - 327 days, from collection to extraction for analysis (approximately 9 - 11 months). According to the study authors, the available storage stability data from the shipping verification samples (field spikes performed in conjunction with the subject study) supported the storage intervals.
Basis for Concentration:	Nominal
Effect Concentration Type:	Test material
Basis for Effect:	Measured residues in flowers and bee-collected pollen/nectar from treated canola (*Brassica* spp).

Applicant-Provided Results:

The study report indicated recoveries of afidopyropen in flowers spiked with 0.01, 1 and 5 mg/kg averaged 98%, while recoveries of M4401007 averaged 73%. Recoveries of afidopyropen from nectar spiked with 0.01 or 1.0 mg/kg averaged 96% while recoveries of M4401007 averaged 82%. Recoveries of afidopyropen from pollen spiked with 0.01 or 1.0 mg/kg averaged 97% while M4401007 averaged 84%. Recoveries of field spikes of 1.0 mg/kg fanged between 97 – 117% across all of the matrices.

According to the study authors, mean residues of afidopyropen in flowers were 4.43 mg/kg (range: 3.73 - 4.97 mg/kg) at 0 days after application (0 DAA), declined to 0.11 mg/kg (range: 0.10 - 0.13 mg/kg) at 3 DAA, and 0.013 mg/kg (range: 0.011 - 0.015 mg/kg) at 7 DAA, and were non-quantifiable (<0.01 mg/kg) at 10 DAA (**Table 1**). Mean M440I007 residues in flowers were 0.36 mg/kg (range: 0.33 - 0.40 mg/kg) at 0 days after treatment (0 DAA), declined to 0.020 mg/kg (range: 0.014 - 0.023 mg/kg) at 3 DAA, and were non-quantifiable (<0.01 mg/kg) in all samples collected 7 and 10 days after treatment.

The study authors reported that in pollen, mean residues of afidopyropen were 0.26 mg/kg (range: 0.17 - 0.40 mg/kg) at 0 DAA, were 0.023 mg/kg (range, 0.018 - 0.031 mg/kg) and 0.027 mg/kg (range:0.020 -

0.037 mg/kg) at 3 and 7 DAA, respectively, and declined to <0.010 mg/kg (range: <0.010 -0.011 mg/kg) at 10 DAA (**Table 1**). Mean M440I007 residues in pollen were 0.061 mg/kg (range: 0.037 - 0.10 mg/kg) at 0 DAA and were non-quantifiable (each replicate <0.01 mg/kg, except one at 0.018 mg/kg at 3 DAA) for the remaining sampling intervals.

According to the study authors, residues of afidopyropen in bee-collected nectar were 0.052 mg/kg (range: 0.010 - 0.13 mg/kg) at 0 DAA, and were below the limit of quantitation (<0.01 mg/kg) in all samples collected 3, 7, and 10 days after treatment (**Table 1**). Mean M440I007 residues in nectar were below the limit of quantitation (each replicate <0.01 mg/kg except one at 0.013 mg/kg at 0 DAA) in all samples collected 0, 3, 7, and 10 days after treatment.

Table 1. Registrant summary of measured afidopyropen parent and M4401007 degradate residues (range and mean) in flowers, and honey bee (*Apis mellifera*)-collected pollen and nectar from canola (*Brassica* spp) at 0, 3, 7 and 10 days after application of afidopyropen typical end product BAS 440 00 I (9.7% active ingredient) during bloom.

Analyte (Matrix)	Days after treatment (DAA)	Residue levels [mg/kg] [1)]				
		n	BAS 440 00I (afidopyropen)		M440I007	
			Range	Mean	Range	Mean
Flowers	0	3	3.73 - 4.97	4.43	0.33 - 0.40	0.36
	3	3	0.10 - 0.13	0.11	0.01 - 0.02	0.02
	7	3	0.01 - 0.02	0.01	< 0.01	< 0.01
	10	3	< 0.01	< 0.01	< 0.01	< 0.01
Pollen	0	3	0.17 - 0.40	0.26	0.04 - 0.10	0.06
	3	3	0.02 - 0.03	0.02	< 0.01 - 0.02	< 0.01
	7	3	0.02 - 0.04	0.03	< 0.01	< 0.01
	10	3	<0.01 - 0.01	< 0.01	< 0.01	< 0.01
Nectar	0	3	0.01 - 0.13	0.05	< 0.01 - 0.01	< 0.01
	3	3	< 0.01	< 0.01	< 0.01	< 0.01
	7	3	< 0.01	< 0.01	< 0.01	< 0.01
	10	3	< 0.01	< 0.01	< 0.01	< 0.01

[1] Values < 0.01 mg/kg were assigned ½ the limit of quantification (LOQ) of 0.005 mg/kg for calculation of the mean.

Applicant-Reported Statistics and Error Estimates
Statistical treatment of the data included simple descripting statistics (*e.g.*, mean; range) for the residue and method recovery data, and calculation of the calibration curve and coefficient of variation (*r*) by linear regression of the instrument responses for the reference standards.

IV. OVERALL REMARKS, ATTACHMENTS

Multiple deviations from the study protocol were noted by the author; however, in general, the study authors did not believe these deviations impacted the scientific integrity of the study.

V. PRIMARY REVIEWER'S ANALYSIS AND CONCLUSIONS

Average residues of parent afidopyropen and its M440I007 degradate are consistent with those calculated by the study authors and reported in **Table 1**.

Reviewer's Statistical Verification:
Descriptive statistics on residue levels at various study sampling intervals were generated using the Proc Univariate procedure of SAS® (SAS Institute, Cary, NC).

Reviewer's Comments:
According to the study report, an investigation of the storage stability of residues (afidopyropen and M4410007) frozen in a variety of plant matrices is currently in progress; however, the report notes that "available data indicate that residues of afidopyropen are stable when stored frozen in representative crop matrices for at least 12 months." Nominal concentration in application solution was not verified analytically.

Table 2 summarizes the weight of pollen collected for each of the study replicates and indicates that at 0 DAA, the weight of pollen collected in sample A controls ($C_a - C_b$) averaged 1.188 g; whereas, the weight of pollen collected in afidopyropen treatments ($T_a - T_c$) for sample A averaged 0.271 g and were roughly 77% lower than controls even though pollen trap samples had been supplemented with pollen collected directly from flowers. At 3 DAA, control and treated sample weights averaged 3.064 and 0.687 g, respectively, in sample A; weights were again roughly 78% lower than controls. By 7 DAA, mean pollen sample weights in control and treated averaged, 0.548 and 0.757 g, respectively, in sample A; by this time, pollen weights had increased by roughly 38% relative to controls. At 10 DAA, mean pollen weights in control and treated averaged 0.535 and 0.729 g, respectively; by this time, pollen weights from bees foraging in treated areas increased by roughly 36% relative to controls.

Table 2. Summary of pollen sample weights for each replicate of control (C) and afidopyropen treated (T) at different sampling interval (days after treatment; DAA).

Replicate	Sample Interval	BBCH	Sample Weight (g)	
			Subsample A	Subsample B
C_a	0 DAA	10% 59, 80% 62 – 65 10% 67	1.193	5.491
C_b			1.182	0.505
T_a			0.267[a]	N/A
T_b			0.317[a]	N/A
T_c			0.229[a]	N/A
C_a	3 DAA	10% 62 60% 63 – 65 20% 67 10% 69	2.187	1.704
C_b			3.940	4.044
T_a			0.530	0.586
T_b			0.562	0.423
T_c			0.968	0.539
C_a	7 DAA	30% 65 40% 67 30% 69	0.589	0.219
C_b			0.506	0.069
T_a			0.566	N/A
T_b			1.246	0.506
T_c			0.459	N/A
C_a	10 DAA	20% 69 80% 69	0.497	0.046
C_b			0.573	0.857
T_a			0.516	N/A
T_b			1.114	0.508

T_c			0.557	N/A

DAA = days after application
N/A = not applicable
[a] additional pollen collected from flowers in T_a, T_b and T_c

Following a foliar spray application of the afidopyropen formulated product BAS 440 00 I (9.7% a.i.) at a nominal rate of 50 g BAS 440 I/ha (0.272 lbs/A) to canola at bloom mean afidopyropen residues in flowers were 4.43 mg/kg (range: 3.73 - 4.97 mg/kg) at 0 days after application (0 DAA), 0.11 mg/kg (range: 0.10 - 0.13 mg/kg) at 3 DAA, and 0.013 mg/kg (range: 0.011 - 0.015 mg/kg) at 7 DAA, and were less than the limit of quantification (LOQ<0.01 mg/kg) at 10 DAA. Mean M440I007 residues were 0.36 mg/kg (range: 0.33 - 0.40 mg/kg) at 0 DAA, 0.020 mg/kg (range: 0.014 - 0.023 mg/kg) at 3 DAA, and were below the LOQ (<0.01 mg/kg) in all samples collected 7 and 10 DAA.

In pollen, mean afidopyropen residues were 0.26 mg/kg (range: 0.17 - 0.40 mg/kg) at 0 DAA, were 0.023 mg/kg (range, 0.018 - 0.031 mg/kg) and 0.027 mg/kg (range: 0.020 - 0.037 mg/kg) at 3 and 7 DAA, respectively, and declined to <0.010 mg/kg (range: <0.010 - 0.011 mg/kg) at 10 DAA. Mean M440I007 residues were 0.061 mg/kg (range: 0.037 - 0.10) at 0 DAA and were below the LOQ (each replicate <0.01 mg/kg, except one at 0.018 mg/kg at 3 DAA) for the remaining sampling intervals.

In nectar, mean afidopyropen residues were 0.052 mg/kg (range: 0.010 - 0.13 mg/kg) at 0 DAA, and were below the LOQ (<0.01 mg/kg) in all samples collected 3, 7, and 10 DAA. Mean M440I007 residues were below the LOQ (each replicate <0.01 mg/kg except one at 0.013 mg/kg at 0 DAA) in all samples collected 0, 3, 7, and 10 DAA.

Reviewer's Conclusions:
Following a foliar spray application of the afidopyropen formulated product BAS 440 00 I (9.7% a.i.) at a nominal rate of 50 g BAS 440 I/ha (0.272 lbs/A) to canola at bloom mean (± standard deviation) afidopyropen residues in flowers were 4.43 mg/kg (± 0.63) at 0 days after application (0 DAA), 0.11 mg/kg (± 0.015) at 3 DAA, and 0.013 mg/kg (± 0.002) at 7 DAA, and were less than the limit of quantification (LOQ<0.01 mg/kg) at 10 DAA. Mean M440I007 residues were 0.36 mg/kg (± 0.035) at 0 DAA, 0.020 mg/kg (± 0.005) at 3 DAA, and were below the LOQ (<0.01 mg/kg) in all samples collected 7 and 10 DAA.

In pollen, mean afidopyropen residues were 0.26 mg/kg (± 0.12) at 0 DAA, were 0.023 mg/kg (± 0.027) and 0.027 mg/kg (± 0.009) at 3 and 7 DAA, respectively, and declined to <0.010 mg/kg (range: <0.010 - 0.011 mg/kg) at 10 DAA. Mean M440I007 residues were 0.061 mg/kg (range: 0.037 - 0.10) at 0 DAA and were below the LOQ (each replicate <0.01 mg/kg, except one at 0.018 mg/kg at 3 DAA) for the remaining sampling intervals.

In nectar, mean afidopyropen residues were 0.052 mg/kg (±0.068) at 0 DAA, and were below the LOQ (<0.01 mg/kg) in all samples collected 3, 7, and 10 DAA. Mean M440I007 residues were below the LOQ (each replicate <0.01 mg/kg except one at 0.013 mg/kg at 0 DAA) in all samples collected 0, 3, 7, and 10 DAA.

Although the study was not intended to provide biological information on the bees used to collect samples, weights of pollen samples provide anecdotal information that at 0 and 3 DAA, samples sizes from treated plots were 77 – 78% lower than controls; however, by 7 and 10 DAA, pollen sample

weights from treated plots had increased by 38 and 36%, respectively, relative to controls. These data suggest that bee pollen foraging activity may have been affected in afidopyropen-treated plots from 0 through 3 DAA; however, after this period, bee pollen foraging activity may have increased in the treated group relative to controls. Based on sample sizes of nectar, nectar foraging activity did not appear to be affected.

Results Synopsis:

Mean residues at 0 DAA after foliar application of BAS 440 00 I at nominal rate of 50 g a.i./ha (0.272 lbs a.i./A):

Flowers: 4.43 ± 0.63 mg/kg (Parent); 0.36 ± 0.035 mg/kg (M4401007)
Nectar: 0.052 ± 0.068 mg/kg (Parent); <0.01 mg/kg (M4401007)
Pollen: 0.26 ± 0.12 mg/kg (Parent); 0.061 ± 0.034 mg/kg (M4401007)

EPA Classification: Acceptable
PMRA Classification: Reliable with restrictions

APPENDIX I. Output of Statistics Verified by the Reviewer

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Flower DAA=0

Moments

N	3	**Sum Weights**	3
Mean	4.42666667	**Sum Observations**	13.28
Std Deviation	0.63406099	**Variance**	0.40203333
Skewness	-1.0245835	**Kurtosis**	.
Uncorrected SS	59.5902	**Corrected SS**	0.80406667
Coeff Variation	14.3236668	**Std Error Mean**	0.36607528

Basic Statistical Measures

Location		**Variability**	
Mean	4.426667	**Std Deviation**	0.63406
Median	4.580000	**Variance**	0.40203
Mode	.	**Range**	1.24000
		Interquartile Range	1.24000

Tests for Location: Mu0=0

Test	**Statistic**		**p Value**	
Student's t	**t**	12.09223	**Pr > |t|**	0.0068
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	**Quantile**
100% Max	4.97
99%	4.97
95%	4.97
90%	4.97
75% Q3	4.97
50% Median	4.58
25% Q1	3.73
10%	3.73
5%	3.73
1%	3.73

Quantiles (Definition 5)

Level	Quantile
0% Min	3.73

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
3.73	2	3.73	2
4.58	3	4.58	3
4.97	1	4.97	1

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DE RADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Flower DAA=0

Moments

N	3	**Sum Weights**	3
Mean	0.36333333	**Sum Observations**	1.09
Std Deviation	0.03511885	**Variance**	0.00123333
Skewness	0.42327316	**Kurtosis**	.
Uncorrected SS	0.3985	**Corrected SS**	0.00246667
Coeff Variation	9.66573739	**Std Error Mean**	0.02027588

Basic Statistical Measures

Location		Variability	
Mean	0.363333	**Std Deviation**	0.03512
Median	0.360000	**Variance**	0.00123
Mode	.	**Range**	0.07000
		Interquartile Range	0.07000

Tests for Location: Mu0=0

Test	Statistic		p Value	
Student's t	**t**	17.91949	**Pr > |t|**	0.0031
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	Quantile
100% Max	0.40

Quantiles (Definition 5)

Level	Quantile
99%	0.40
95%	0.40
90%	0.40
75% Q3	0.40
50% Median	0.36
25% Q1	0.33
10%	0.33
5%	0.33
1%	0.33
0% Min	0.33

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.33	2	0.33	2
0.36	3	0.36	3
0.40	1	0.40	1

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DE RADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Flower DAA=3

Moments

N	3	**Sum Weights**	3
Mean	0.11333333	**Sum Observations**	0.34
Std Deviation	0.01527525	**Variance**	0.00023333
Skewness	0.93521953	**Kurtosis**	.
Uncorrected SS	0.039	**Corrected SS**	0.00046667
Coeff Variation	13.4781638	**Std Error Mean**	0.00881917

Basic Statistical Measures

Location		Variability	
Mean	0.113333	**Std Deviation**	0.01528
Median	0.110000	**Variance**	0.0002333
Mode	.	**Range**	0.03000
		Interquartile Range	0.03000

Tests for Location: Mu0=0

Test	Statistic		p Value	
Student's t	**t**	12.85079	**Pr > |t|**	0.0060
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	Quantile
100% Max	0.13
99%	0.13
95%	0.13
90%	0.13
75% Q3	0.13
50% Median	0.11
25% Q1	0.10
10%	0.10
5%	0.10
1%	0.10
0% Min	0.10

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.10	4	0.10	4
0.11	6	0.11	6
0.13	5	0.13	5

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Flower DAA=3

Moments

N	3	**Sum Weights**	3
Mean	0.01966667	**Sum Observations**	0.059
Std Deviation	0.00493288	**Variance**	0.00002433
Skewness	-1.6523167	**Kurtosis**	.
Uncorrected SS	0.001209	**Corrected SS**	0.00004867

Moments

Coeff Variation	25.0824552	**Std Error Mean**	0.002848

Basic Statistical Measures

Location		**Variability**	
Mean	0.019667	**Std Deviation**	0.00493
Median	0.022000	**Variance**	0.0000243
Mode	.	**Range**	0.00900
		Interquartile Range	0.00900

Tests for Location: Mu0=0

Test	**Statistic**		**p Value**	
Student's t	**t**	6.905428	**Pr > |t|**	0.0203
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	**Quantile**
100% Max	0.023
99%	0.023
95%	0.023
90%	0.023
75% Q3	0.023
50% Median	0.022
25% Q1	0.014
10%	0.014
5%	0.014
1%	0.014
0% Min	0.014

Extreme Observations

Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
0.014	4	0.014	4
0.022	6	0.022	6
0.023	5	0.023	5

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Flower DAA=7

Moments

N	3	**Sum Weights**	3
Mean	0.01266667	**Sum Observations**	0.038
Std Deviation	0.00208167	**Variance**	4.33333E-6
Skewness	1.29334278	**Kurtosis**	.
Uncorrected SS	0.00049	**Corrected SS**	8.66667E-6
Coeff Variation	16.4342053	**Std Error Mean**	0.00120185

Basic Statistical Measures

Location		**Variability**	
Mean	0.012667	**Std Deviation**	0.00208
Median	0.012000	**Variance**	4.33333E-6
Mode	.	**Range**	0.00400
		Interquartile Range	0.00400

Tests for Location: Mu0=0

Test	**Statistic**		**p Value**	
Student's t	**t**	10.5393	**Pr > |t|**	0.0089
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	**Quantile**
100% Max	0.015
99%	0.015
95%	0.015
90%	0.015
75% Q3	0.015
50% Median	0.012
25% Q1	0.011
10%	0.011
5%	0.011
1%	0.011
0% Min	0.011

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.011	7	0.011	7
0.012	9	0.012	9
0.015	8	0.015	8

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DE RADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Flower DAA=7

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Flower DAA=10

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Flower DAA=10

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Nectar DAA=0

Moments

N	3	**Sum Weights**	3
Mean	0.05166667	**Sum Observations**	0.155

Moments

Std Deviation	0.06788471	**Variance**	0.00460833
Skewness	1.72148595	**Kurtosis**	.
Uncorrected SS	0.017225	**Corrected SS**	0.00921667
Coeff Variation	131.389754	**Std Error Mean**	0.03919325

Basic Statistical Measures

Location		**Variability**	
Mean	0.051667	**Std Deviation**	0.06788
Median	0.015000	**Variance**	0.00461
Mode	.	**Range**	0.12000
		Interquartile Range	0.12000

Tests for Location: Mu0=0

Test	**Statistic**		**p Value**	
Student's t	**t**	1.318254	**Pr > |t|**	0.3181
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	**Quantile**
100% Max	0.130
99%	0.130
95%	0.130
90%	0.130
75% Q3	0.130
50% Median	0.015
25% Q1	0.010
10%	0.010
5%	0.010
1%	0.010
0% Min	0.010

Extreme Observations

Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
0.010	14	0.010	14
0.015	13	0.015	13

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.130	15	0.130	15

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DE RADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Nectar DAA=0

Moments			
N	1	Sum Weights	1
Mean	0.013	Sum Observations	0.013
Std Deviation	.	Variance	.
Skewness	.	Kurtosis	.
Uncorrected SS	0.000169	Corrected SS	0
Coeff Variation	.	Std Error Mean	.

Basic Statistical Measures			
Location		Variability	
Mean	0.013000	Std Deviation	.
Median	0.013000	Variance	.
Mode	0.013000	Range	0
		Interquartile Range	0

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	.	Pr > |t|	.
Sign	M	0.5	Pr >= |M|	1.0000
Signed Rank	S	0.5	Pr >= |S|	1.0000

Quantiles (Definition 5)	
Level	Quantile
100% Max	0.013
99%	0.013
95%	0.013
90%	0.013
75% Q3	0.013
50% Median	0.013

Quantiles (Definition 5)

Level	Quantile
25% Q1	0.013
10%	0.013
5%	0.013
1%	0.013
0% Min	0.013

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.013	15	0.013	15

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	2	66.67	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Nectar DAA=3

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Nectar DAA=3

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT

SAMPLE=Nectar DAA=7

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Nectar DAA=7

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Nectar DAA=10

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Nectar DAA=10

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Pollen DAA=0

Moments

N	3	**Sum Weights**	3
Mean	0.26333333	**Sum Observations**	0.79
Std Deviation	0.12096832	**Variance**	0.01463333
Skewness	1.40513837	**Kurtosis**	.
Uncorrected SS	0.2373	**Corrected SS**	0.02926667
Coeff Variation	45.937335	**Std Error Mean**	0.06984109

Basic Statistical Measures

Location		**Variability**	
Mean	0.263333	**Std Deviation**	0.12097
Median	0.220000	**Variance**	0.01463
Mode	.	**Range**	0.23000
		Interquartile Range	0.23000

Tests for Location: Mu0=0

Test	**Statistic**		**p Value**	
Student's t	**t**	3.770464	**Pr > |t|**	0.0637
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	**Quantile**
100% Max	0.40
99%	0.40
95%	0.40
90%	0.40
75% Q3	0.40
50% Median	0.22
25% Q1	0.17
10%	0.17
5%	0.17
1%	0.17

Quantiles (Definition 5)

Level	Quantile
0% Min	0.17

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.17	26	0.17	26
0.22	25	0.22	25
0.40	27	0.40	27

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DE RADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Pollen DAA=0

Moments

N	3	**Sum Weights**	3
Mean	0.06066667	**Sum Observations**	0.182
Std Deviation	0.03429772	**Variance**	0.00117633
Skewness	1.62663966	**Kurtosis**	.
Uncorrected SS	0.013394	**Corrected SS**	0.00235267
Coeff Variation	56.534697	**Std Error Mean**	0.0198018

Basic Statistical Measures

Location		Variability	
Mean	0.060667	**Std Deviation**	0.03430
Median	0.045000	**Variance**	0.00118
Mode	.	**Range**	0.06300
		Interquartile Range	0.06300

Tests for Location: Mu0=0

Test	Statistic		p Value	
Student's t	**t**	3.063695	**Pr > |t|**	0.0921
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	Quantile
100% Max	0.100

Quantiles (Definition 5)

Level	Quantile
99%	0.100
95%	0.100
90%	0.100
75% Q3	0.100
50% Median	0.045
25% Q1	0.037
10%	0.037
5%	0.037
1%	0.037
0% Min	0.037

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.037	26	0.037	26
0.045	25	0.045	25
0.100	27	0.100	27

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DE RADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Pollen DAA=3

Moments

N	3	**Sum Weights**	3
Mean	0.023	**Sum Observations**	0.069
Std Deviation	0.007	**Variance**	0.000049
Skewness	1.57434402	**Kurtosis**	.
Uncorrected SS	0.001685	**Corrected SS**	0.000098
Coeff Variation	30.4347826	**Std Error Mean**	0.00404145

Basic Statistical Measures

Location		Variability	
Mean	0.023000	**Std Deviation**	0.00700
Median	0.020000	**Variance**	0.0000490
Mode	.	**Range**	0.01300
		Interquartile Range	0.01300

Tests for Location: Mu0=0

Test	Statistic		p Value	
Student's t	**t**	5.691024	**Pr > |t|**	0.0295
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	Quantile
100% Max	0.031
99%	0.031
95%	0.031
90%	0.031
75% Q3	0.031
50% Median	0.020
25% Q1	0.018
10%	0.018
5%	0.018
1%	0.018
0% Min	0.018

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.018	28	0.018	28
0.020	30	0.020	30
0.031	29	0.031	29

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Pollen DAA=3

Moments

N	1	**Sum Weights**	1
Mean	0.018	**Sum Observations**	0.018
Std Deviation	.	**Variance**	.
Skewness	.	**Kurtosis**	.
Uncorrected SS	0.000324	**Corrected SS**	0

Moments			
Coeff Variation	.	**Std Error Mean**	.

Basic Statistical Measures			
Location		**Variability**	
Mean	0.018000	**Std Deviation**	.
Median	0.018000	**Variance**	.
Mode	0.018000	**Range**	0
		Interquartile Range	0

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	.	**Pr > |t|**	.
Sign	**M**	0.5	**Pr >= |M|**	1.0000
Signed Rank	**S**	0.5	**Pr >= |S|**	1.0000

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	0.018
99%	0.018
95%	0.018
90%	0.018
75% Q3	0.018
50% Median	0.018
25% Q1	0.018
10%	0.018
5%	0.018
1%	0.018
0% Min	0.018

Extreme Observations			
Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
0.018	29	0.018	29

Missing Values			
Missing Value	**Count**	**Percent Of All Obs**	**Percent Of Missing Obs**

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	2	66.67	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Pollen DAA=7

Moments

N	3	**Sum Weights**	3
Mean	0.02666667	**Sum Observations**	0.08
Std Deviation	0.00907377	**Variance**	0.00008233
Skewness	1.52149166	**Kurtosis**	.
Uncorrected SS	0.002298	**Corrected SS**	0.00016467
Coeff Variation	34.026644	**Std Error Mean**	0.00523874

Basic Statistical Measures

Location		**Variability**	
Mean	0.026667	**Std Deviation**	0.00907
Median	0.023000	**Variance**	0.0000823
Mode	.	**Range**	0.01700
		Interquartile Range	0.01700

Tests for Location: Mu0=0

Test	**Statistic**		**p Value**	
Student's t	**t**	5.090278	**Pr > |t|**	0.0365
Sign	**M**	1.5	**Pr >= |M|**	0.2500
Signed Rank	**S**	3	**Pr >= |S|**	0.2500

Quantiles (Definition 5)

Level	**Quantile**
100% Max	0.037
99%	0.037
95%	0.037
90%	0.037
75% Q3	0.037
50% Median	0.023
25% Q1	0.020
10%	0.020
5%	0.020
1%	0.020

Quantiles (Definition 5)

Level	Quantile
0% Min	0.020

Extreme Observations

Lowest		Highest	
Value	Obs	Value	Obs
0.020	31	0.020	31
0.023	32	0.023	32
0.037	33	0.037	33

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DE RADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Pollen DAA=7

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENT AND DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: PARENT
SAMPLE=Pollen DAA=10

Moments

N	2	**Sum Weights**	2
Mean	0.0105	**Sum Observations**	0.021
Std Deviation	0.00070711	**Variance**	5E-7
Skewness	.	**Kurtosis**	.
Uncorrected SS	0.000221	**Corrected SS**	5E-7
Coeff Variation	6.7343503	**Std Error Mean**	0.0005

Basic Statistical Measures

Location		Variability	
Mean	0.010500	**Std Deviation**	0.0007071
Median	0.010500	**Variance**	5E-7
Mode	.	**Range**	0.00100
		Interquartile Range	0.00100

Tests for Location: Mu0=0

Test	Statistic		p Value	
Student's t	**t**	21	**Pr > |t|**	0.0303
Sign	**M**	1	**Pr >= |M|**	0.5000
Signed Rank	**S**	1.5	**Pr >= |S|**	0.5000

Quantiles (Definition 5)

Level	Quantile
100% Max	0.0110
99%	0.0110
95%	0.0110
90%	0.0110
75% Q3	0.0110
50% Median	0.0105
25% Q1	0.0100
10%	0.0100
5%	0.0100
1%	0.0100
0% Min	0.0100

Extreme Observations

Lowest		Highest	
Value	**Obs**	**Value**	**Obs**
0.010	35	0.010	35
0.011	34	0.011	34

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	1	33.33	100.00

DESCRIPTIVE STATISTICS FOR RESIDUES OF PARENTAL D DEGRADATE IN VARIOUS MATRICES

The UNIVARIATE Procedure
Variable: DEGRADATE
SAMPLE=Pollen DAA=10

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs

Missing Values

Missing Value	Count	Percent Of All Obs	Percent Of Missing Obs
.	3	100.00	100.00